Forword

Precautions

In addition to the security precautions that must be followed, there are several precautions relating to the use of this set of thin sections. Please be careful not to scratch or break the sections. The thin sections in this set are uncovered and highly polished so that the opaque minerals may be studied by reflected light microscopy. A good-quality research microscope with dry, high-power objectives is required. Do not use oil. These samples were prepared without the use of water. Do not clean or repolish. The sections are not all of a standard thickness (i.e. 30 microns), so beware of false interference colors.

Objective Petrography

Petrography students are expected to write their own descriptions of these thin sections of lunar rock. In general, petrographic descriptions should be strictly objective, leaving all discussion of petrogenesis to the end. However, the petrographic descriptions in this booklet are based on those given in scientific literature and do not necessarily serve as good examples of strict objectivity. Such is the nature of lunar science! In preparing this student booklet, it was important to convey some of the excitement inherent in lunar sample science; thus, some discussion of sample origin has unavoidably crept in. But, remember, it is important to describe nature, before trying to explain it!

Disclaimer

Some important lunar science topics are not discussed in this booklet because they are not illustrated by the samples included in the provided sets. Moreover, many of the most important lunar rocks could not be used to make these sets of educational thin sections. However, the Apollo astronauts did collect several samples that were large enough for both scientific investigation and educational activity. From these, NASA has prepared 20 sets of thin sections (12 each) for use in petrology classes and an additional 201 encapsulated lunar disks (6 samples each) for use in secondary schools. The supplied samples necessarily differ slightly for each set; thus the general descriptions given in this booklet are only a guide to your own observations. For example, although it is not mentioned, you may find a big metal grain in your section. Furthermore, the photographs in this booklet may not be exactly like the thin section contained in your set.

A little background

The information posted at this web site (or CD) is an update of a booklet composed by Chuck Meyer in 1987 to accompany microscope thin sections made of a carefully selected subset of lunar rocks. This site is not a comprehensive, or even an introductory, treatise on lunar science. It provides only enough information to provide some context for the study of the thin sections that the NASA curator loans to upper division petrography classes. It needs to be supplemented by educational materials of the instructors's choosing. NASA has been providing these sets of petrographic thin sections to colleges and universities for over thirty years. Hopefully the students that get to study these precious samples already have vast experience using advanced microscopes to study polished thin sections of a variety of terrestrial samples. And, hopefully, they will closely follow the Precautions above.